ASL

WINTER NEWSLETTER 2013

Australian Society for Limnology Inc.
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president's report

Welcome to the mid-year family sedan... I mean newsletter. Surely it should be an SUV in this day and age and for all our fieldwork? The ASL committee has only met once since the last newsletter, we have had to reschedule our June meeting due to an unusually large number of apologies – a mixture of travelling, overwork and the dreaded lurgy striking members down now that it is winter....

There is plenty going on in the Society, with a number of events happening. Firstly, registrations and abstract submission are open for our congress in Canberra, to be held from the 3rd – 6th December at UC. The student workshops will be held on the 3rd followed by the welcome mixer and post-congress field trips will be held on the 7th. Register soon to get early bird rates and students please apply to Richard Marchant for the ASL travel awards.

Some of you may have regained the feeling in your right arm after voting to revise our constitution at the AGM in Armidale last year. The Victorian department of Consumer Affairs has now reviewed the revised constitution and have requested that we insert a clause regarding 'Vacation of Office'. Sadly, this does not require the executive to go on holidays, but does require us to make some small modifications to the constitution.

The executive will approve the wording and seek the department's approval before asking the membership to vote at the AGM in Canberra. I promise that this will not require as much time as our original changes that have been approved by Consumer Affairs and I am very hopeful that this will be the end of changes to the constitution for some time.

New South Wales, Queensland and ACT members are organizing a workshop on the impacts of coal-seam gas and coal mining on freshwaters to be held at UTS in Sydney. The aim is to synthesise current knowledge of impacts and identify knowledge gaps and opportunities for further research. Members interested in attending should contact Gillian Dunkerley Gillian.Dunkerley@environment.nsw.gov.au . This is another of the State-based activities for ASL members. WA rep Scott Strachan is planning a pub night style meeting for WA members – contact Scott s.strachan@murdoch.edu.au if you have any ideas for good venues. I strongly encourage members from states not already having local events to start using the funding available. Brief proposals can be sent to Richard Marchant or myself.

Planning is also well advanced for the congress in Darwin in July 2014. This will be a joint congress with ASFB and "cracker night" is on while we are there, so it should be an experience! At present we are looking at four concurrent sessions over four days, with post-congress tours on the fifth day and a range of exciting invited speakers.

So, with much to look forward to I wish everyone the best for a healthy winter,

Belinda Robson

WORKSHOP ANNOUNCEMENT

The impacts on water of coal seam gas and coal mining: what do we know and what do we need to know?

A one-day workshop to synthesize the science, identify gaps and explore ways forward.

University of Technology

late September - early October

Stay tuned for date and room details. Registration will open soon. Numbers will be strictly limited.

For further inofrmation, contact Gillian Dunkerley:

Gillian.Dunkerley@environment.nsw.gov.au

02 9995 5530

from the editor...

Ok. So it's not quite the top of the range Volvo with heated seats that our Swedish compatriots drive to their field sites, but at least it's had a bit of spit and polish and is ready to be taken for a spin. The newsletter is your vehicle to take down tracks that more formal scientific publications dare not go and I hope to insipre all of you to fuel such trips during my time as Editor and maybe shift the gear up a little. It's great to see 'Field work Friday' alive and kicking on Facebook (pp. 24-25) and I hope to see many more field work and conference snaps posted in coming months. I'd be particulalry interested in receiving some opinion pieces to feature in upcoming newsletters to spark some discussion and debate on controversial topics (usually things that being with 'r'). If you have an idea and are keen, please get in touch!

Thanks to all of you who have provided contributions to this winter issue, espcially Briann TImms and Keith Walker for their grabbing story of their long-term sampling efforts (pp. 20-22). Alex Bush also contributes a postcard from the 61st Meeting of the Society for Freshwater Science recently held in Jacksonville, Florida (pp. 16-17). There is conference and workshop news including details for our upcoming ASL Annual Congress which is really taking shape (pp. 8-10). And, of course, plenty of news from the trenches (from p. 28)...

Wishing you all the best for a cosy winter,

Sam

A couple of snaps from my recent trip to Estes Park, Colorado for the International Symposium on Society and Natural Resources.

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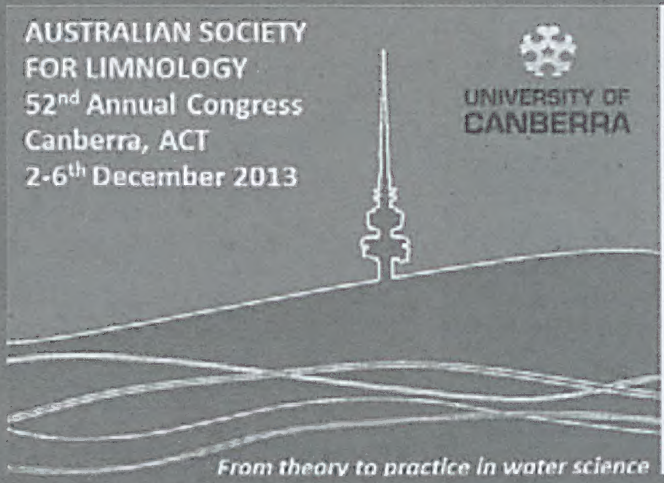

ASL
Australian Society
for Limnology Inc.

Registration Now Open!!!

Details at
http://asl.asnevents.com.au

THEME

The conference will showcase the very best of aquatic ecology research in Australia, from the fundamental to the applied. Taking advantage of hosting the conference in our capital city, we will engage with a broad range of people in the general public, industry and policy. In order to best provide the opportunity for industry and agency representatives to attend, a day has been set aside for selected contributed and invited talks which illustrate how aquatic ecology broadly can inform management and policy.

CALL FOR SPECIAL SESSIONS

You are invited to contribute ideas for special sessions during the conference. Contact the Program Chair Fiona Dyer (Fiona.dyer@canberra.edu.au).

COSTS AND DINNER

Because of the difficulties in gaining sponsorship support this year we have had to keep the registration costs at the same price as in 2012. We have sought to reduce costs to delegates in other areas through accommodation deals and through having a cheaper venue for the dinner.

FIELD TRIPS

Fieldtrips will be on the last day with two options; 1/ a trip to the new Cotter Dam 3/ an urban waterways trip. For more details contact Evan Harrison (even.harrison@canberra.edu.au).

ACCOMMODATION

A shuttle bus will service all accommodation. Rates range from $94pn upwards. For more details see http://asl.asnevents.com.au/asl-congress-2013/accommodation-4/.

PROGRAM OVERVIEW

- A keynote address from Professor Colin Townsend, one of the world's pre-eminent aquatic ecologists and author of one of the most commonly used undergraduate textbooks.
- A special day of speakers showcasing the full spectrum of aquatic ecology research in the context of how best to address challenges in water science (special day registrations available).
- Sponsored special sessions by a range of agencies and industries active in the water sector
- Contributed talks from Australian and international aquatic ecologists
- Addresses from the Australian Society for Limnology prize winners.
- Displays by sponsors, government, consultants and industry
- The Annual General Meeting of the Society
- Social events including the annual Congress Dinner, Student mixer and Casual BBQ function.
- Poster Session with drinks
- Leading up to the Conference a special symposium celebrating Professor Richard Norris and 20years of AUSRIVAS (contact Sue Nichols sue.nichols@canberra.edu.au for details)

SPECIAL INDUSTRY AND AGENCY ENGAGEMEMENT DAY

5th DECEMBER 2013

With invited speakers from across the science and water sectors

Opportunity for day registration by industry and agency representatives

KEYNOTE SPEAKER:

Professor Colin Townsend

University of Otago

Details at

http://asl.asnevents.com.au

ASL CONGRESS 2013

PROGRAM AT A GLANCE

MONDAY 2nd DECEMBER

9:00am-3:00pm	Student workshops	Ann Harding Centre
9:00am-4:00pm	Norris Symposium (by invitation)	Ann Harding Centre
3:30pm-5:30pm	Student Mixer	Zierholz Bar
5:30pm-7:30pm	Welcome Mixer	Zierholz Bar

TUESDAY 3rd DECEMBER

9:00am-10:00am	Welcome and Keynote Address	Ann Harding Centre
11:00am-4:30pm	Contributed talks	Ann Harding Centre
4:30pm-6:00pm	Poster Session and Mixer	Ann Harding Centre
6:30pm-9:30pm	BBQ by the Lake	Lake Ginninderra

WEDNESDAY 4th DECEMBER

8:30am-11:00am	ASL Award Winners Lectures	Ann Harding Centre
1:00pm-5:00pm	Contributed talks/invited speakers	
5:00m-6:30pm	Industry Mixer	Ann Harding Centre
6:30pm- late	Dinner and Entertainment	Zierholz Bar

THURSDAY 5th DECEMBER

9:00am-12:00pm	Urban waterways in Canberra
9:00am-3:00pm	Cotter Dam and surrounds

Many NCCARF reports on climate change adaptation and freshwater ecosystems have recently been released by NCCARF. These are freely available from:

www.nccarf.edu.au

and Australia Policy Online

www.apo.org.au

N.B.

Thompson, RM et al. 2013 Mitigating impacts of climate change on stream food webs: impacts of elevated temperature and CO2 on the critical processes underpinning

Barmuta, L, Davies, P, Watson; A, et al. 2013 Joining the dots: hydrology, freshwater ecosystem values and

Dyer, F, El Sawah, S, et al. 2013 Predicting water quality and ecological responses.

van der Wal, J., James, C. et al. 2013. Identifying climate refuges for freshwater biodiversity across Australia.

and more...

International Conference on the Status and Future of World's Large Rivers

Manaus/Amazon/Brazil

21-25 July 2014

http://worldslargerivers.boku.ac.at

This conference aims to provide a global forum for a wide-ranging discussion of key issues related to research on large rivers and to their effective and sustainable management, involving both scientists and decision makers.

Scientists and practitioners are strongly encouraged to present their research results and experiences in the fields of:

- Hydrology, hydraulics & water quality
- Sediment transport & river morphology
- Ecology & restoration
- as well as in a special session about Amazonia (incl. ORE-HYBAM

Abstract submission is now open:

http://worldslargerivers.boku.ac.at/wlr/index.php/abstractsubmission.html

Important dates:

11th April 2013: Call for abstracts

31st of July 2013: Deadline for abstract submission

January 2014: End of reviewing and notification to authors

Naziano Filizola

Chair of Local Organizing Committee (LOC)

Helmut Habersack

Chair of International Scientific Committee (ISC)

JASM 2014

The first ever Joint Aquatic Sciences Meeting will be held in Portland, Oregon, on 18-23, May 2014. This meeting will bring together four societies: SFS (Society for Freshwater Science, formerly NABS), ASLO (Association for the Sciences of Limnology and Oceanography), SWS (Society of Wetland Scientists) and PSA (Phycological Society of America).

The theme for the meeting is "Bridging Genes to Ecosystems: Aquatic Science at a Time of Rapid Change." An important aim of this meeting includes working toward an integrative understanding of aquatic systems and fostering collaboration and interaction across the participating societies.

To these ends, the meeting planning committee has developed five special sessions to accompany each of the five meeting plenary talks. The plenary speakers for the meeting are Ginger Armbrust (University of Washington), Stuart Bunn (Australian Rivers Institute), Laurel Larsen (UC Berkeley), Julian Olden (University of Washington), and Patricia Soranno (Michigan State University.)

The five special sessions associated with the plenaries are:

- Putting Microbial Genomes to Work in Ecosystem Science
- Communicating the Value of Aquatic and Wetland Ecosystems to the Public and Policy Makers
- Predicting Ecosystem Thresholds and Regime Shifts
- Aquatic and Wetland Conservation in the Anthropocene? Principles and Practices for a Rapidly Changing World
- Large-Scale Limnology – Integrating Terrestrial, Wetland, and Aquatic Interactions across Landscapes

The planning committee is calling for proposals for additional sessions from the memberships of the four societies. There will be two types of sessions.

Special sessions are intentionally integrative and address broad and timely topics of interest to a diverse audience. In particular we seek ideas for sessions that cut across sub-disciplines, levels of biological or ecological organization, and society boundaries. We encourage co-leadership in these sessions, with session organizers coming from 2 or more of the 4 societies participating in the meeting. Co-leaders should be indicated in the proposal. Proposals for special sessions should be accompanied by a list of prospective speakers and tentative presentation titles or topics, to allow the meeting committee to evaluate interest in the proposed sessions.

Regular sessions will comprise more discipline-specific or society-specific content with no requirement of multiple society leadership.

Both session types will be open to invited and contributed speakers. Session organizers will be able to review submitted abstracts and approve the final talks / posters included in the approved sessions; they will also be able to order the talks in the desired sequence. All presenters, whether invited or contributed, poster or oral, will need to register for the meeting and pay the appropriate fee. Likewise, session organizers attending the meeting also will need to register.

Proposals for Special and Regular Sessions must be submitted online by 23:59 U.S. Central Daylight Time, 31 August 2013 to http://aslo.org/meetings/portland2014/sessions/index.php.

Proposals should include the following information:

- Session title
- Name(s) of session organizer(s), affiliation(s) and contact methods. Ideally each special session will have multiple organizers from different societies
- Brief synopsis of the session; preference will be given to sessions with an integrative theme
- List of potential contributors to the session (if a special session)

Proposals will be reviewed by Special Sessionco-chairs(seebelow).Proposerswill be notified of the decision in October 2013.

For additional logistical information, please contact:

Lynda West

Project Manager

5400 Bosque Boulevard, Suite 680

Waco, Texas 76710-4446

e-mail: lyndaw@sgmeet.com

phone: 1-800-929-2756 or 1-254-776-3550

For technical or content questions, please contact:

N. LeRoy Poff (SFS), Colorado State University (poff@lamar.colostate.edu)

Or other members of the 2014 JASM Subcommittee for Special Sessions:

John Harrison (ASLO), Washington State Univ., Vancouver (john_harrison@vancouver.wsu.edu)

Colin MacLaren (SWS), Parametrix, Portland (CMacLaren@parametrix.com)

Roxane Maranger (ASLO), University of Montreal (r.maranger@umontreal.ca)

Alexandra Worden (PSA), Monterrey Bay Aquarium Research Institute (azworden@mbari.org)

WORKSHOP ANNOUNCEMENT

Ramsar Wetlands: Detecting Change in Ecological Character

5-8 November, 2013

Queenscliff, Victoria

The University of Ballarat are hosting a 3 day workshop that will reflect on change in the ecological character of Ramsar Wetlands. The workshop is supported by IGBP PAGES (Past Global Changes) and the University's Collaborative Research Network. The focus is to bring the knowledge of long term change in wetlands together with the ongoing process of assessing wetland condition. Participants include members of the Ramsar Scientific and Technical Review Panel and leaders of PAGES.

See details at:
http://crnballarat.com/ramsar/
and complete an EOI.

Peter Gell

postcard from...

61st Annual Meeting of the Society for Freshwater Science

In mid-May, thanks to the support of the ASL Bill Williams Travel Scholarship, I was able to attend the SFS conference held this year in Jacksonville, Florida. Many at the meeting still talks about NABS (North American Benthological Association) but SFS is now a global society with many presenters attending from all continents and so a good opportunity to meet researchers I would otherwise never have crossed paths with. Australians were in fact the second largest foreign contingent at the meeting this year out of 800 people, and this was a small meeting, apparently because Jacksonville wasn't that exciting (more on that later).

This was my first conference of this size so perhaps this experience is not unusual but when there are 7 concurrent sessions it was impossible to make all talks and a length sprint to change venues. Mirroring the global desperation for fossil fuels of any kind it would have been possible to spend much of the conference just hearing of the issues we face due to the extraction of oil sands and fracking for shale gas (18 talks) and coal (25). Day 1 coffee breaks were pretty insane and you could spend all 15 minutes trying to find someone and fail so you learnt to have conversations or arrange meeting whenever you get the chance.

On reflection the last day was perhaps the best because as well as a great climate change themed session, I also heard some amazing things that can now be done with DNA barcoding that we should all watch closely in the future. The climate change session is close to my own research, but was actually better because of the range of other techniques in that one session; from remote and long term monitoring studies, to others measuring respiration response to temperature in individual larvae!

Despite the much hyped entertainment complex of Jacksonville Landing the city centre is a dead zone. Massive portions and cheap everything is fun for a few days but by the final day, having heard a lot about Florida's springs during the conference I was itching to get outside. It was a good thing I had chosen the conference field trip kayaking down Itchetucknee Springs where around 800,000m3 a day at a constant 22°C pours from the various springs and you need to back-paddle just to slow down and enjoy it. You can swim down to the springs in several places and feel the force of the water pouring out! The water is crystal clear having just come out the ground so every fish and turtle is on display, and we saw swallow-tail kites, turkey vultures, giant apple snails and otters along the way, plus at least 12 species of dragonflies! I was very fortunate to have the company of fellow ASLers Sylvia Hay and Teresa Mackintosh for the weekend and we had a great couple of days..

To students: I actually appreciate how good ASL is now more than before, and feel I possibly prefer it to such a massive meeting. However, it's the best place to meet the rest of the limnological world and almost every SFS veteran believes next year's meeting in Portland, a much more lively city by all accounts, will be better and with three other societies tagging along it will certainly be even bigger. If you are interested in attending SFS, I recommend you consider applying to the ASL Bill Williams fund, the SFS Fellows fund and your university.

by Alex Bush

Top: my walk to the conference every morning

Bottom: kayaking down Itchetcuknee Springs, paddles really are just to steer!

An update from Science

Science & Technology AUSTRALIA

Message from the CEO

A number of critical issues were discussed and finalised at last week's STA Board meeting in Brisbane.

It was my first board meeting as CEO and I was made to feel very welcome. I was impressed by the commitment and range of expertise among your representatives – both Board members and observers.

Better communication with members is a top priority for STA, and a range of changes are on the way to help you get more from your membership. For a start a new, better-looking and better functioning newsletter will be coming soon, but for now here's an update on activities and what they mean for you.

Science meets Parliament

Science Meets Parliament will not be held this calendar year, due to the Federal Election, but will instead take place in 2014, on March 17 and 18. The intention had been to stage the event in mid-August, but the election announcement meant plans had to be changed.

This will be a permanent change and will set the event up as a fitting early marker in the in the political and academic year. More information will be provided on the website and in newsletters as we approach the event. We look forward to seeing you in March 2014.

Election year activities

Election year activities are gaining pace as we count down to the Federal poll. STA will again conduct our election science questionnaire of major and minor parties and Independents. We will be asking for their views and policy intentions on science, technology, education and research. The results will be delivered directly to you in the final weeks of the campaign so you can take the responses into account when casting your vote.

Also this election year STA has led a project to bring together a 'research alliance' or a wide range of science and research bodies, to speak with one voice and urge all-party support for science and research. This will culminate in a joint statement to be made on June 17 at Parliament House.

This will be the first time peak representative bodies and learned academies - representing hundreds of thousands of researchers across business and industry, universities and medical research institutes - have come together to urge multi-party support for research.

STA is proud to have played a formative role in pulling this campaign together, and we are relying on your support to give the message the best possible chance of being heard and of leading to concrete commitments from political leaders.

In the days surrounding the public release we will send a pack of information with full details and ways you can get involved.

STA Strategic Direction Review

The board discussed an investigation of the strategic direction of STA and alternate models of corporate governance to ensure the financial stability and health of the organisation. A group from the STA Executive will work on this in coming months, and will present findings to the members at the AGM on November 22.

Science meets Business

STA will run a series of Science Meets Business forums, placing scientists in boardrooms to discuss critical scientific issues for the nation's future.

Backed by Questacon's Inspiring Australia program, the forums will engage influential audiences who don't normally have close links with science and scientists. The aim is to build mutual understanding and put science at the centre of policy thinking and high-level public debate.

We will be seeking input from members on suggested speakers, topics and host groups as the planning progresses in coming months.

Women in Science Toolkit

Following on from the STA-commissioned report Women in science: maximising productivity, diversity and innovation, 2009, by Professor Sharon Bell and the Women in Science Summit in April 2011, a Women in Science Toolkit will be developed over the coming 18 months. The Toolkit will provide a practical guide on how to improve the participation of women in the workforce based on best practice harvested from organisations around Australia and abroad, via ARC-supported research, conducted by Professor Bell and her team.

A summit to discuss the research will be run next year, and regular updates will be included in future newsletters.

Member connections and capabilities and hands-on skills workshop

Another of the highly-successful members skills workshops will be held at year's end, with exact dates yet to be confirmed. Building on the 2011 initiative, STA will again provide a day-long series of talks on the key issues in running a scientific society, from legal advice and social media to declining membership numbers and conference planning. Member societies with relevant experience, as well as outside experts, will take part in sessions.

This is part of a broader ongoing project to improve two-way connections with members, giving you a wider range of communications options, including video, social media and other interactive forums for information exchange.

www.sta.org.au
www.respectthescience.org.au

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"In times gone by..."

an irregular series by Brian Timms and friends

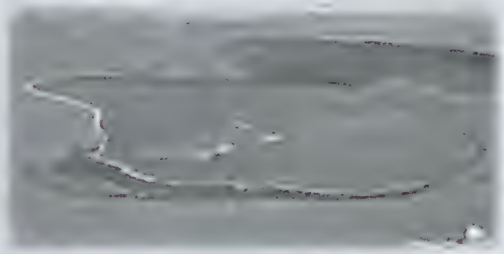
#2. A revolutionary method for long-term sampling of lake benthos

(with Keith Walker)

Have you ever been on field work and committed a dreadful blunder that you'd really rather not talk about? Like backing the truck into a tree, or forgetting to put the bung in the boat before launch?

One such shameful episode came to our attention recently, after many years when one of us thought the world might forget. On 15 May 2013, Brian attended a workshop about Lake Corangamite held in Colac, western Victoria. We should pause first to salute that lake.

Corangamite is the largest natural lake in Victoria, and the largest permanent salt lake in Australia. Wet years in the 1950s caused the lake to flood surrounding farmland, bringing great inconvenience and loss of income. The salinity declined to 20-30 g/L, and the lake soon was home to astonishing numbers of waterbirds. The lake, with some of its neighbours, was declared a Ramsar site. The government of the day was pressured to do something to alleviate the flooding, and a barrage was built to divert the main inflow, the Woady Yallock River, to the Barwon River. With the barrage in place, and a series of drought years, the lake receded, the salinity skyrocketed from 20 to 40 then 60 g/L, and biodiversity plummeted. Through the 1990s the barrage remained, despite the appeals of ASL founding member Bill Williams and colleagues, and the lake became a vestige of its former self. Today there is a cairn on the lake shore, honouring Bill's efforts.



Werowarp, Oct 1968

In 2004, Brian spoke about Corangamite's plight at a world conference in Belgium on 'Dead and Dying Seas'. In 2013, at long last, the authorities are taking their responsibilities more seriously and plans are afoot to improve the dire situation.

But to return to our theme...

Keith with the grab (left) Fellow student, Geoff Brand, on shore with Clarke-Bumpus net (below)After 43 years (bottom)

At the Colac workshop, Brian was pontificating about the wonders of the invertebrates of saline lakes, and happen to show a picture of a Birge-Ekman grab, used to collect benthos. That sparked a response from local landowner Tony Mahoney, who had found something like in the sediments of a now-dry lake, Werowrap, part of the Red Rock complex on the shores of Corangamite. The chain of connection led to Keith, who as a postgraduate worked on the lake in 1968 1971.

One windy, wintry day in 1970, when the air temperature was 8C and the lake water was whipped to foam, Keith had been out on a dinghy, using the grab to sample the benthos (for the most part, huge numbers of midge larvae, Tanytarsus barbitarsis). The rope slipped from the grab, and it disappeared into the water. The lake was only a metre and a half deep, but the sediments were waist-deep ooze. Into the water he went, but after two desperate hours of treading the ooze he had to quit. Back up the hill to the nearby field station, and another two hours wrapped in a blanket, in front of a radiator, shivering like a leaf.

The grab remained where it was for 43 years, protected from the corrosive lake water by its stainless steel housing. Tony, manager of a property that includes the lake, was glad to have the mystery solved. By the way, that property is on the market and he is keen to see it pass into public ownership.

Lake Werowrap has been dry for about a decade, and the same is true of other lakes in the complex (Red Rock Tarn, Ian Bayly's "Locality D", Coragulac, Gnalinegurk, East and West Basin lakes). While this is due partly to long-term drying in western Victoria, seen in the recessions of deep volcanic lakes like Lake Bullenmerri and Keilambete and shallow lakes like Modewarre and Barney Bolac, the situation at Red Rock also has a local cause.

Landholders north of the crater lakes were allowed to begin large-scale irrigation fed by groundwater; the water table dropped and the lakes dried. This sequence of events was disputed by the irrigators, but research by groundwater scientists at the University of Melbourne was conclusive.

Red Rock is a multiple explosion crater, with deep beds of scoria that have been mined for road metal and must decorate many gardens in Victoria. The crater lakes were windows in a groundwater table fed from the Mt Warren massif to the northwest, and their water chemistry was modified by the local rocks, creating saline "chlorocarbonate" lakes that were unique in Australia and the world. Years ago, Keith was intrigued to discover that the local indigenous people, the Warrion (Woiworung) tribe, called their 'medicine men' Wirrawraps. A mineral spa, perhaps?

The situation probably will not change in the near future, but irrigation clearly has contributed to major losses of local environmental and biological diversity. A similar story of mismanagement and environmental damage applies to nearby Lake Corangamite, and in other parts of the Western District.

Our thanks to Tony for uncovering the lost grab, and we wish him well in his efforts to protect Red Rock for the future.

Further reading:

Hammer, U. T., K. F. Walker and W. D. Williams 1973. Derivation of daily phytoplankton production estimates from short-term experiments in some shallow, eutrophic Australian saline lakes. Australian Journal of Marine and Fresh¬water Research 24: 259-266.

Paterson, C.G. and K. F. Walker 1974. Seasonal dynamics and productivity of Tanytarsus barbitarsis (Diptera: Chironomidae) in the benthos of a shallow, saline lake. Australian Journal of Marine and Freshwater Research 25: 151 165.

Paterson, C.G. and K. F. Walker 1974. Recent history of Tanytarsus barbitarsis (Diptera: Chironom¬idae) in the sediments of a shallow, saline lake. Australian Journal of Marine and Fresh¬water Research 25: 166 175.

Timms, B. V. 2005. Salt lakes in Australia: present problems and prognosis for the future. Hydrobiologia 552: 1-15.

Walker, K. F. 1973. Studies on a saline lake ecosystem. Australian Journal of Marine and Freshwater Research 24: 21-71.

Williams, W.D. 1995. Lake Corangamite, Australia, a permanent saline lake: conservation and management issues. Lakes and Reservoirs: Research and Management 1: 55-64.

Minutes from ASL Executive Teleconference

6th May 2013

Present: R.Lester, B. Robson, R. Thompson, A. Steward, B. Downes, C. Bartholomaeus, D. Cortez, D. Ryder, E. Harrison, R. Magierowski, S. Strachan, F. Sheldon, R. Marchant, ASN (S. Monk, J. Moir and S. Robin)

Apologies: G. Dunkerley, E. Garcia, T. Mackintosh, A. Bush

1. Vacation of Office rule: R. Marchant circulated a draft of a new rule covering vacancies that arise on the executive committee between AGMs. Consumer Affairs Victoria (CAV) have requested such a rule be inserted into the ASL's constitutuion. Some alterations to the wording were suggested. The revised draft will be sent to the executive and then to CAV for approval. Once the new rule is approved it will be publicised in the newsletter and voted on at the AGM in Canberra.

2. Canberra Conference: R. Thompson (chair of meeting) reported that sponsorship had not been easy to get but was still hopeful that more would be forthcoming. To reduce costs of the conference he suggested that the conference dinner should be held at the pub at the University of Canberra. He indicated that this was a suitable location and not nearly as expensive as other Canberra venues. B. Downes and others suggested that the drinks budget at the dinner could be trimmed and also suggested charging higher registration fees for non-members. After discussion it was resolved that full registration fees for non-members would be increased to $825 from $725 (early bird) and $925 from $825 (no discount) and that the university pub was suitable for the conference dinner. An additional saving would be made by limiting the drinks budget at the welcome night to $1500. R. Thompson also presented a draft conference programme which included 4 concurrent sessions, field trips on the Wednesday in the middle of the conference and a symposium on the afternoon of the last day of talks (Thursday). The executive suggested, after some discussion, that it would be better to run field trips on the Friday after the talks and posters and to reduce if possible the number of concurrent sessions from 4 to 3 (this is of course very dependent on the number of talks offered by delegates); at least one session should run in parallel to the symposium on the last day to give some choice to delegates. It was also noted that lunch and the AGM on the Wednesday would need at least 1.5h. Abstracts will be dealt with as in previous years and the submission system will be opened on Friday 10 May.

3. ASL policy on external ASL activities: B. Robson has circulated the current policy and asked for comments, which will be dealt with at the next executive meeting.

4. Darwin conference (2014): The ASL has signed a memorandum of understanding with the Aust Society for Fish Biology (ASFB) with whom this joint conference will be held in July 2014 in Darwin. ASN has visited Darwin recently to examine possible venues. Currently the plan is to have a 4 day programme with 4 concurrent sessions. Nine guest speakers will be invited and field trips will be run on day 5. Costs will be kept down as much as possible and R.Marchant will publicise the ASL student travel awards to encourage students to apply for funding to attend.

Sam Dawson in the Macquarie Marshes in May checking out vegetation in a restored area last cropped in 2008.

Chillin' with Evan Harrison, Thredbo, May

virtual asl

Our student representatives would like to see more evidence of how busy you are and invite all members to submit photos of their recent (or ancient?) field exploits to the ASL Facebook page. For those of you to whom 'syncing' conjures up images of the Poseidon or quicksand, a selection of these will also be presented in each issue of the newsletter.

"By all means embellish your stories from the field with tall tales of the one that got away and the local "customs", but where's the proof? If you have photos from fieldwork we'd like to see them!"

Young male platypus being released into Olinda Creek, Lilydale (posted by Mel Klamt, Monash University)

Please be our friend!
http://www.facebook.com/groups/australiansocietyforlimnology

high profile limnology

This section highlights high profile papers from limnology that have appeared over the last year and which have an ASL connection.

Please feel free to nominate papers, books or reports for this section. Inclusion will be at the Editor's discretion.

This issue features a recent paper from Dr Janice Kerr's PhD work, supervised by Dr Phil Suter (LaTrobe University) and Drs Gavin Rees and Darren Baldwin (MDFRC).

The article reports on research involving the use of the Australian Synchrotron in Melbourne and is freely available online from PLOS ONE.

http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.

OPEN ACCESS Freely available online

PLOS ONE

High Spatial Resolution Infrared Micro-Spectroscopy Reveals the Mechanism of Leaf Lignin Decomposition by Aquatic Fungi

Janice L. Kerr[1,2¤], Darren S. Baldwin[2], Mark J. Tobin[3], Ljiljana Puskar[3], Peter Kappen[4], Gavin N. Rees[2], Ewen Silvester[1*]

1 Department of Environmental Management and Ecology, La Trobe University, Wodonga, Victoria, Australia, **2** Murray Darling Freshwater Research Centre (MDFRC) and CSIRO Land and Water, La Trobe University, Wodonga, Victoria, Australia, **3** The Australian Synchrotron, Clayton, Victoria, Australia, **4** Centre for Materials and Surface Science and Department of Physics, La Trobe University, Bundoora, Victoria, Australia

Abstract

Organic carbon is a critical component of aquatic systems, providing energy storage and transfer between organisms. Fungi are a major decomposer group in the aquatic carbon cycle, and are one of few groups thought to be capable of breaking down woody (lignified) tissue. In this work we have used high spatial resolution (synchrotron light source) infrared micro-spectroscopy to study the interaction between aquatic fungi and lignified leaf vein material (xylem) from River Redgum trees (*E. camaldulensis*) endemic to the lowland rivers of South-Eastern Australia. The work provides spatially explicit evidence that fungal colonisation of leaf litter involves the oxidative breakdown of lignin immediately adjacent to the fungal tissue and depletion of the lignin-bound cellulose. Cellulose depletion occurs over relatively short length scales (5–15 μm) and highlights the likely importance of mechanical breakdown in accessing the carbohydrate content of this resource. Low bioavailability compounds (oxidized lignin and polyphenols of plant origin) remain in colonised leaves, even after fungal activity diminishes, and suggests a possible pathway for the sequestration of carbon in wetlands. The work shows that fungi likely have a critical role in the partitioning of lignified material into a biodegradable fraction that can re-enter the aquatic carbon cycle, and a recalcitrant fraction that enters long-term storage in sediments or contribute to the formation of dissolved organic carbon in the water column.

Citation: Kerr JL, Baldwin DS, Tobin MJ, Puskar L, Kappen P, et al. (2013) High Spatial Resolution Infrared Micro-Spectroscopy Reveals the Mechanism of Leaf Lignin Decomposition by Aquatic Fungi. PLoS ONE 8(4): e60857. doi:10.1371/journal.pone.0060857

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Competing Interests: The authors have declared that no competing interests exist.

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Introduction

In many aquatic ecosystems (rivers, lakes and wetlands) leaf litter is an important source of carbon, contributing to both the aquatic food web as well as the formation of stored (recalcitrant) organic carbon [1]. The formation and stability of stored carbon reserves is critical to global carbon cycles and future climate trajectories [2]. Wetlands are particularly important with respect to carbon storage; wetlands occupy somewhere between 2 and 6% of the world's land surface area [3], but contain about one third of the organic matter stored in the world's soils [4]. There is however still debate on whether wetlands are a significant global source or sink for carbon [3]. The formation of new stored carbon in wetlands occurs through the action of micro-organisms, converting plant materials into new recalcitrant compounds [5]. Fungi are likely important in the decomposition of vascular plant leaf litter as they are thought to be one few organism groups able to access the carbohydrate content of lignified tissue [6,7]. Studies using simplified lignin-like substrates have shown that fungi use depolymerisation exo-enzymes such as ligninases to cleave carbon-carbon and carbon-oxygen bonds [8,9,10] although there is very little direct evidence for this process in natural systems.

While significant information about the fungal decomposition of plant material can be obtained from bulk analysis techniques (fungal biomass [11], induced sporulation [11,12], leaf composition [13,14]) and DNA-based measurements of community structure [15,16], such techniques do not provide spatially explicit data about the interaction of fungi with plant substrates. Infrared (IR) micro-spectroscopy is ideally suited to the study of biomolecular changes in leaf tissue during fungal leaf decomposition; IR spectra allow the discrimination of leaf tissue composition [17], and leaf anatomy is reproducible between samples so changes in spatial distributions are readily recognised. The coupling of IR micro-spectroscopy with synchrotron light sources offers considerable advantages in terms of spatial resolution, allowing investigation of the interface between fungal tissue and leaf substrate at relevant length scales [17]. In particular, IR micro-spectroscopy allows direct examination of changes in leaf lignin composition is close proximity to fungal tissue, and therefore the opportunity to verify the depolymerisation of the lignified substrate.

reports from the trenches

Griffith UNIVERSITY

Australian Rivers Institute

Hello. We will start this issue, as we do every issue, with an insight into the life of **Stuart Bunn**. Stuart visited Manila in March to attend the Asian Water Week conference organised by the Asian Development Bank; and then he moved straight onto China for meetings to further strengthen ties with contacts there. ARI will soon have about 6 new Chinese PhD students commencing, which is very exciting. In May, Stuart gave a keynote address at Bonn in the conference "Water in the Anthopocene". It doesn't stop there: Stuart will visit Slovenia in July/August to attend meetings for IPCC (Intergovernmental Panel on Climate Change), followed by a visit to Beijing to give a keynote address at the ISRS conference (3rd Biennial Symposiu of International Society for River Science). Phew, it is difficult for us to keep up.

Cath Leigh recently gave an oral presentation in the Special Session on extreme climatic events in riverine systems, organised by Sandy Milner and Mark Ledger of the University of Birmingham. Cath's presentation focussed on rivers in northern Australia and the potential effects of extreme cyclonic events on aquatic macroinvertebrate community persistence through the dry season, extending upon research she published in Hydrobiologia. Cath has also just started a new, 30-month post-doc position in Lyon, France at Irstea (National Research Institute of Science and Technology for Environment and Agriculture) to work on an international collaborative project, Intermittent River Biodiversity Analysis & Synthesis (IRBAS), funded by the French Foundation for Research on Biodiversity and the French National Agency for Water and Aquatic Environments. Cath remains an adjunct member of ARI so you can contact her through her Griffith email (c.leigh@griffith.edu.au).

Mark Kennard has been successful in receiving funding to enable Julian Olden, Associate Professor in the School of Aquatic and Fishery Sciences, University of Washington, to visit the Institute from November 2013 to January 2014. Julian will be very busy during his time with us. He will deliver a seminar, run a two-day workshop for postgraduate students (Applied Multivariate Statistics for Ecologists) and meet individually with postgraduate students and postdoctoral Research Fellows to discuss research.

Jon Knight and ARI student, **Lachlan Griffin**, together with Professor **Pat Dale**, visited the USA February/March: not only to attend the American Mosquito Control Association annual meeting, but also to travel to visit various other collaborators and sites in USA. They had a very packed itinerary during this visit, partially funded through the competitive ARI conference funding round

We would like to welcome our new HDR students: **James Daley** supervised by **Jacky Croke**, **Jack Coates Marnane** supervised by Jacky Croke, **Christopher Henderson** supervised by **Joe Lee**, & **Shannon Klein** supervised by **Kylie Pitt**. We would also like to welcome **Harmony C. Patricio**, a new HDR student, working with **Simon Linke**. Harmony has 10 years of experience as a conservation researcher. As the Conservation Director at FISHBIO she has worked extensively with Salmonids in the western USA and in the Mekong River basin of SE Asia. She has conducted large-scale biotelemetry studies to assess migration and survival of Salmonids. In the Mekong she has designed and implemented conservation and research projects on fish diversity and ecology, and trained many locals to conduct participatory research. For her dissertation work with ARI she will focus on transboundary migrations of rare fishes in the Mekong, and hopes to establish a hydroacoustic telemetry network that will serve researchers throughout the Basin and enable enhanced understanding of migrations and the potential impacts of connectivity disruptions.

Next month most of ARI's staff will be moving into the newly built Sir Samuel Griffith Centre on the Nathan Campus. Come and say hello in our swanky new pad.

Until next time

Charlotte Hurry

"UNE BAGUETTE S'IL VOUS PLAIT"

Cath Leigh has just started a 30-month post-doctoral research position at Irstea in Lyon, France, working on an exciting new project called IRBAS, funded by the French Foundation for Research on Biodiversity and the French National Agency for Water and Aquatic Environments.

• IRBAS = Intermittent River Biodiversity Synthesis and Analysis (www.irbas/fr)

•Irstea = National Research Institute of Science and Technology for Environment and Agriculture (www.irstea.fr/dynam)

Besides expanding her knowledge of the French beyond, "une baguette, s'l vous plait", Cath will be working alongside Thibault Datry, Klement Tockner, Nuria Bonada, Cliff Dahm, Scott Larned, Eric Sauquet, Bernard Hugeny, Andrew Boulton, Ken Fritz and Bernard Dumont and others to discover, quantify and analyse biodiversity patterns and relationships in intermittent rivers. The project will also provide policy-makers and resource managers with tools they need for effective management and restoration, and raise awareness about the importance of these rivers with scientists, managers, and the public. Cath and the team will be looking far and wide for research and data on intermittent rivers and biodiversity, so please get in touch if you want to find out more.

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ecological AUSTRALIA

It's been a busy quarter for the ELA aquatic team, with projects in the Northern Territory, Queensland, and many parts of New South Wales.

In Darwin, **Maria Kraatz** helped develop a water resource policy for African mahogany (Khaya senegalensis) plantations in the Douglas Daly region, using the research results from Charles Darwin University and the CSIRO for the National Water Commission. Maria and **Andrew Buick** also completed a survey of Water Act licence and permit holders for the NT Department of Land Resource Management.

Stygofauna sampling continues in central Queensland, with **Pete Hancock** and **Katrina Cousins** finding a few interesting crustaceans in a near-river alluvial aquifer. Also in central Queensland, **Paul Frazier** and **Nat van der Veer** have been using remote sensing techniques to map seepage from dams. Next step is a site visit to collect field data and verify the GIS images.

Several team members have been busy working in the Namoi River catchment. **Pete Hancock** and **Julie-Anne Harty** assessed macroinvertebrate communities and water quality at 13 sites t the mid-catchment. In a separate project, **Pete and Dan McKenzie** sampled fish and macroinvertebrate communities in the Namoi River and an ephemeral tributary. An interesting observation was the degree to which Gambusia had attacked juvenile Spangled Perch as drying pools became smaller. Approximately 80 % of the Spangled Perch collected had less than 10 % of their tail fin.

Emily Southwell, Paul Frazier and Emma Garraway assessed the success of 33 riparian rehabilitation projects in the Namoi catchment against site specific aims and Namoi Catchment Action Plan targets. The projects ranged from riparian fencing and off-channel watering to large in-stream engineering structures. A combination of in-field channel and riparian condition assessments and landholder surveys was used for the assessment.

Nathalie van der Veer and Rebecca McCue have been teaching local school groups about the aquatic ecology of Dumaresq Dam and demonstrating how changes in bio-chemistry in the urban reach of Dumaresq Creek can alter aquatic life.

Julie-Anne Harty and Emma Garraway prepared an Environmental Flow Release Framework for a small dam in central west NSW. Maintaining stream and riparian ecological condition, and water quality, were balanced with the need to provide a secure water supply for downstream towns, and landholder concerns.

In the Sydney Basin, **Beth Medway** has been working with the NSW National Parks and Wildlife Service to develop the Special Areas Strategic Plan of Management and associated Resource Document and Administrative Guidelines. Beth has also prepared the Wingecarribee Swamp Operations Plan for the SCA.

Paul Frazier and Pete Hancock recently attended the Northern Murray-Darling Basin Science Workshop in Narrabri, with Paul presenting the results of some of his geomorphological and remote sensing work in the upper Basin.

Jack Talbot has joined the ELA team in Austinmer (NSW). Jack is an environmental scientist with experience in contaminated lands soil and surface water assessment, groundwater pump tests, town water supply sampling and mine dewatering.

Nathan Kearnes, Mark Walton and ELA field teams have been undertaking an extensive rapid condition assessment of stormwater tailout channels for Hills Shire Council. The focus of the project was to condition assess tailout channels for priority areas and score the results of the assessment to help Council prioritise each feature for management works.

Peter Hancock

Murdoch UNIVERSITY

Murdoch Aquatic Ecology Group

Jane Chambers, Gaia Nugent and Belinda Robson have organised a workshop for the WA NCCARF Freshwater Biodiversity Network to present the findings of the two NCCARF funded research projects to natural resource managers. The risk assessment framework for groundwater dependent ecosystems and the refuges for freshwater biodiversity from climate change. Both sets of reports will soon be available on the NCCARF website. Jane and Gaia are also heading over to Sydney where Jane will present their risk assessment framework at the NCCARF National Adaptation Conference, and to Adelaide to convene a workshop to integrate a number of recently created risk assessment frameworks into a module-based approach for managers. **Ed Chester and Kerrylyn Johnston** have returned from Victoria, where they surveyed streams in the Grampians National Park, with **Ty Matthews and Travis Howson** at Deakin Warrnambool on a ParksVic funded project. This work was originally intended to look at the effects of 2011 floods, given dramatic changes in channel morphology, and also to update the status of endemic crayfish. Since almost the entire study area was burnt this year, they now have to include the effects of fire as well. They collected bugs and measured channel dimensions, woody debris and bed character in some fairly rugged situations, mostly in moonscapes while wearing not very practical hard hats and safety vests. Hard, dirty work but some good data.

Caitlin Bartholomaeus, having completed majority of her field work is busily analysing data and writing up whilst learning the wonders of Program MARK. **Kirsi Kauhanen** has been continuing with quarterly sampling of water, sediment, litter and plants at the Capel Wetlands Centre to capture seasonal changes in the phosphorus storage and cycling dynamics. She has also been chopping up and drying mountains of Typha leaves to estimate changes in above ground biomass. **Peter O'Toole** has been busy completing his report for the Swan River Trust, and has had no time to go fishing. **Scott Strachan** has been sorting more invertebrate samples and found some really cool results of an experiment. He has also submitted his first ever paper which he is very excited about, and hasn't caught any big fish from the new boat yet.

MONASH University

Monash Freshwater ResearchGroup

The Monash Freshwater Research Group is gearing up for some serious lab work with winter now in full swing and most field work already completed. We recently said good bye and good luck to post-doc Pavel Kratina (visiting from UC Davis) who has accepted a position at Queen Mary University of London and to *Alejandra Moran-Ordonez* who has now started work at Melbourne Uni. Lone post doc *Sally Hladyz* (CSIRO Cluster) is off to Germany to have a beer or two for the 8th Symposium for European Freshwater Sciences in Münster, Germany to present her work - auf Deutsch bitte!

Congratulations to Honours students *Caitlin Knight and Glenis McBurnie* who have submitted their theses, while current Honours student Amy Smith is in the process of deciphering a whole bunch of genetic sequences and trees to discover cryptic species of arid zone freshwater invertebrates.

On the PhD front, *Emma Razeng* has been preparing her insect samples for gene sequencing and putting together her research plan. *Emma and Ashley Murphy* are about to set off for a week-long stint in Brisbane, where they will attend the Winter School in Mathematical and Computational Biology at UQ (and hopefully get some sunshine). Ash has been figuring out his research plan on desert fish evolution, and is now planning a sampling trip to central Australia in September. *Fariba Pakdel* has started one of her lab experiments, which includes growing microalgae and cyanobacteria, in Petri dishes, with macrophyte material. Fariba is also cultivating macrophyte species in mesocosms located in the Jock Marshall Reserve and is hoping they grow well for further experiments. *Darren Giling* has just returned from the student conference for conservation science in Cambridge, UK and is making great progress in his write up. Darren has even managed to whip up the new lab group website which you can see here http://monashfreshwater.com (with more content on the way!) What can't Darren do!

Mel Klamt has completed her autumn sampling and now has three ovens and three freezers full of samples to keep her busy over winter. *Teresa Mackintosh* has just returned from the Society of Freshwater Science conference (Jacksonville, Florida) with lots of positive and valuable feedback from the work she presented on biodiversity in urban wetlands and is back in the lab now that she has finished her field work.

Clarissa Barbosa is off to Brazil to undertake a food web modelling course with *Kevin McCann and Gabriel Gellner,* after which she will be back to her samples in the lab. *Nicholas Moran* completed a successful sampling trip in Central Australia this autumn and is busy now taking care of aquariums full of desert fish and processing food web samples. *Esther Anderson* is getting organised for her field trip to East Timor in July where she is attempting to find a balance between repelling mosquitoes so she won't catch dengue, malaria, filariasis or Japanese encephalitis, but not repelling them so much that they won't come to her ovitraps. Esther is also practising her Tetum for her presentation to the TLSA conference in Dili. If nothing else, she will give people who are actually fluent in Tetum a good laugh.

Jenny Davis and Mike Grace (Water Studies Centre) recently caught up with freshwater colleagues in Canberra (a place even colder than Melbourne) to discuss collaborative approaches to research in the Murray-Darling Basin. Jenny continued on to Brisbane for further collaborative interactions on the themes of variability, connectivity and climate change at the Grand ACEAS Workshop on Freshwater Ecology. This theme was continued the following week when Jenny presented the findings of the Monash-led climate change project on arid zone water bodies at the NCCARF Climate Adaptation 2013 knowledge and partnerships conference in Sydney.

Mel Klamt and

Teresa Mackintosh

Murray Darling WETLANDS WORKING GROUP LTD.

I've just returned from leave, but want to share with you what *Sarah Ning* has been up to.

Barmah-Millewa Forest Research Conference 2013

Held in Shepparton on 30 April to 1 May, the two-day conference provided a summary of the many and varied research and monitoring projects that have been undertaken in the Barmah-Millewa Forest. Attendees were from research and NRM organisations, who heard from ecologists such as *Dr Lyndsey Vivien* (CSIRO) present her findings on the effects of drought and floods on *Juncus ingens* (Giant Rush). Giant Rush invasion provides an on-going challenge for managers and trials were conducted to help determine appropriate environmental watering regimes for their management.

The conference was hosted by the Goulburn Broken CMA, in partnership with Murray-Darling Basin Authority, Office of Environment and Heritage, Parks Victoria and the Yorta Yorta Aboriginal Corporation. With over 100 attendees, the research presented was diverse, covering subjects of cultural conservation of turtles to midden fish studies to hydrodynamic flood mapping and blackwater influence on food webs.

Murray Wetland Carbon Storage Project - Landholder Site Visits

During the past few months, visits to landholders in the Murray CMA region have been undertaken as part of the Murray Wetland Carbon Storage project wetland assessment phase. Visits have been made to landholders in the Deniliquin, Jerilderie, Corowa, Jindera and Culcairn areas, providing an opportunity to engage with landholders that the project hopes to be working with as part of the project's incentive program, which is proposed to be launched in spring of this year.

Wetland sites have been of varying condition with good potential for rehabilitation activities such as altered grazing regimes, wetland hydrology improvement, fencing and pest management, to increase their carbon storage capacity and improve their biodiversity. Landholder site visits will continue over the next few months to assist with the determination of priority actions and incentive program development.

Murray Wetland Carbon Storage Project - Wetland Workshop

The Project Team (***Drs Trish Bowen and Nicky Bruce*** - Murray CMA, Rhonda Sinclair and Sarah Ning - MDWWG) for the Murray Wetland Carbon Storage project, held a two-day workshop on the banks of the Murray River at Banyandah, Howlong. The workshop focussed on required planning for upcoming project events and the project's incentive delivery program, including the development of appropriate selection criteria and weightings, promotion activities and monitoring program. The location for the workshop provided the opportunity to tour the wetlands on the property which have been rehabilitated (including the delivery of environmental water) through past wetland incentive projects.

Carbon Farming Initiative and Environmental Plantings for Extension Staff Workshop

Through the Regional Landcare Facilitator Program the Goulburn Broken CMA held a workshop on 18 June in Benalla for extension staff involved in biodiverse plantings with landholders. The workshop was delivered by ***Michael Rooney*** from Greening Australia with a particular focus on the environmental plantings methodology.

Detailed information on the Carbon Farming Initiative (CFI) Program was provided through a series of presentations as well as a number of resources. ***Sarah Ning and Dr Nicky Bruce*** (Murray CMA) attended the workshop to further develop their understanding on how the CFI carbon crediting scheme works and to assist in being able to provide information to landholders as part of the assessment and incentive program phases being delivered through the project.

Native Fish Strategy Legacy Conference

Nagambie was the venue for the Native Fish Strategy Legacy Conference. Held on the 6 June, this one day conference was attended by Director, Judy Frankenberg and Project Officer, Sarah Ning along with many past and present community group and NRM organisation representatives. The conference was delivered by the Murray-Darling Basin Authority marking the end of the Native Fish Strategy near ten year program.

The conference highlighted the legacy products of the program such as the Native Fish Knowledge Website, the achievements of the program including widespread community engagement activities and resources, and also to acknowledge the efforts of the program staff and participants. Another important component of the conference was the discussion on the potential for future collaborations. The MDWWG hope to work in partnership with relevant organisations/groups to continue the programs legacy and to achieve good outcomes for native fish.

Rhonda Sinclair

Deborah Bogenhuber and Danielle Linklater at The Murray-Darling Freshwater Research Centre are wrapping up the final report on a three year baseline survey of the Darling Anabranch under the Darling Anabranch Adaptive Management Monitoring Program (DAAMMP). The DAAMMP is funded by the Office of Environment and Heritage (OEH), with ***Sascha Healy*** (OEH) being closely involved in the project throughout its duration. The DAAMMP, setup to run for a further 7 years, was developed in 2009 to support the reinstating of a highly regulated system back to its naturally ephemeral state.

Monitoring of vegetation and vertebrate and yabby communities began in 2010 and it was a race to keep ahead of flood waters making their way into the lower Darling River system via the Menindee Lakes scheme from Queensland rainfall events. The Darling Anabranch hadn't received flows in 8 years thanks to the millennium drought, but since October 2010 has remained inundated as a result of flood events in the Lower Darling Catchment.

Condition Monitoring

Condition monitoring surveys assess the following components on an annual, biannual or triennial basis:

- Understorey vegetation community
- Lignum populations
- Riparian tree community
- Natural organic matter
- Typha distribution

Understorey vegetation, Lignum populations and Black Box and River Red Gum tree communities responded positively to flooding between 2010 and 2012. Using a functional group approach, data analysis has portrayed an overall increase in TERRESTRIAL-DAMP and AMPHIBIOUS plant abundance and species diversity, and a decrease in the abundance and diversity of TERRESTRIAL-DRY species. Natural organic matter loads and Typha distribution both decreased over the three year monitoring period; attributable to flood events.

Intervention Monitoring

Intervention monitoring occurs only in response to environmental flows or flood waters. Nine surveys were completed between spring 2010 and summer 2012–13 in response to 2 flow events. During Intervention surveys monitoring at 17 sites along the Darling Anabranch includes the following components:

- Fish community
- Yabby populations
- Frog community
- Waterbird community
- Water quality

Fish community structure in the Darling Anabranch changed significantly through time, with the majority of fish species being most abundant during the first year of inundation. Yabby populations increased due to aestivating individuals surviving the preceding 8 years of drought and successfully recruiting. The Darling Anabranch frog community responded to the 2010–11 and 2011–12 floods and frogs were recorded in greatest abundances in newly inundated vegetated areas of the floodplain. A total of 34 species of waterbird from each of five functional groups were recorded along the Darling Anabranch between spring 2010 and summer 2012–13, with a significant difference in waterbird community composition between surveys.

Final report due out August 2013, keep an eye on MDFRC website for access to the publication and other limnological info:

http://www.mdfrc.org.au/

Institute for
Applied Ecology

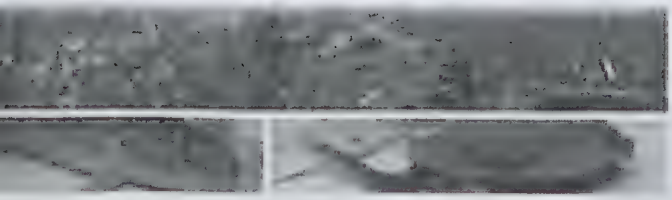
Well time is marching on and we are starting to think very seriously about the upcoming ASL Congress in Canberra in December. I think we are putting together a fantastic program and we hope to be able to welcome a record number of delegates. Check out the detailed notice earlier in the newsletter for more details.

Sue Nichols has just returned from the SFS meeting in Jacksonville, USA where she presented on some of her recent work and led a special session on 'Bioassessment of river health: where are we now and where to in the future?'. This session was in memory of Professor Richard Norris, Chair of Water Science at University of Canberra, who passed away in 2011. Richard was also the recipient of the SFS Award of Excellence, and a very touching video tribute was played with Sam Lake describing Richard's career highlights.

Angus Webb recently visited UC and presented on the work that he and Sue have been carrying out in the area of EcoEvidence and expert opinion. The ACT seminar nights continue to be good fun and a healthy excuse for drinking beer and eating pizza. In April *Chris Fulton* from ANU presented on "Extremes in reefs and streams: dodging danger to find this fish".

Ross Thompson and Fiona Dyer have been enjoying (?) the final stages of writing up their respective NCCARF projects. Ross' contributions 'Climate change adaptation guidelines for arid zone aquatic ecosystems and freshwater biodiversity' and Mitigating impacts of climate change on stream food webs: impacts of elevated temperature and CO2 on the critical processes underpinning resilience of aquatic ecosystems and Fiona's Predicting water quality and ecological responses can be found on the NCCARF website.

Ross has also been working with researchers from the University of Melbourne and MDFRC to write up work on environmental flows in the lower Goulburn River, building on the work carried out led by *Robyn Watts* on the Edwards-Wakool system. In addition, he is continuing his work on revegetation scenarios in the Goulburn catchment and on assembly processes in central Victoria chain-of-pools systems.



UNIVERSITY OF CANBERRA

Mark Lintermans is eagerly awaiting the inundation of the rock reefs in the Cotter Dam and carrying on with the associated monitoring. *Peter Unmack* is now well established and working on his bioregionalisation project for the MDB. *Evan Harrison and Jarrod Kath* are ready to wing their way to the Symposium for European Freshwater Sciences meeting in Munster, Germany.

Anthea Florance is continuing her Honours work on how macroinvertebrate communities have recovered from drought, fire and flood disturbances in the Lower Cotter River Catchment (one of water supply catchments for the ACT). Her project will provide information to ACT Parks on how river health in the catchment has recovered since the 2003 fires and more recently flooding. David Sangston's Honours on determining the size and distribution of natural habitat barriers for Murray Cod movement in the ACT section of Murrumbidgee River is well underway and he is currently wrestling with data.

Adrian Dusting (PhD) is back in the snail-rearing business, working on the effects of stress and population of origin on NZ mudsnail fitness. *Laura Caffrey* is almost through the task of collating all currently published food webs for Ross' Future Fellowship project.

We are currently in the midst of hiring a new Assistant Professor in Water Science and are at the shortlisting phase. Some really exciting talent has come to the fore, so we look forward to announcing an appointment soon.

Ross Thompson

asl experts

Prof A. Arthington: in stream flows, ecology of exotic fishes, conservation of rare fishes. Australian Rivers Institute, Griffith University, Nathan QLD 4111. Phone (07) 3875 7403, Fax (07) 3875 7615, email: a.arthington@mailbox.gu.edu.au

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I would encourage all ASL members to visit: www.asl.org.au and if necessary bring your account up to date and make any changes necessary to your details. To attend the conference at member rates you must be a financial member valid until June 2014.

If your current membership expired June 2013 you can either renew online or when you register for the conference your membership will be automatically renewed until 2014.

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ASL Australian Society for Limnology

The Australian Society for Limnology Inc. (ASL) is an Australian based scientific society whose focus is the study and management of inland waters. The ASL was established in 1961, and has a current membership of over 650 researchers, managers, engineers, teachers and tertiary level students from all states and territories. Members have a strong professional interest in inland aquatic issues, including the maintenance of biodiversity, the maintenance and/or restoration of water quality, and the wise use of aquatic resources. The Society also has a strong interest in fostering the scientific and intellectual development of tertiary students.

The Society includes members working in government agencies, tertiary institutions and many industries related to aquatic resources. Through their daily activities, members have contact with local communities and are in a sound position to interpret and advise on inland water issues. The Society has a substantial knowledge base, and has assumed a responsibility to ensure that this is available to those who manage inland waters. Accordingly, the charter of the ASL is to further our understanding of Australia's inland waters and to promote their wise use and sustainable management. In this manner we will contribute to the continued existence of this valued resource and the maintenance and enhancement of the quality of life for all Australians. The ASL regularly produces a newsletter with notes on limnological activities, articles of interest, book reviews and announcements of upcoming events likely to be of interest to Members.

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